CITY OF HAYWARD

AGENDA REPORT

AGENDADATE 7/25/00

AGENDA ITEM 9

WORK SESSION ITEM _____

TO: Mayor and City Council

FROM: Director of Public Works

SUBJECT: Conversion of Digester No. 3 to Primary Mode, Repair of Digester No. 2 Dome, and Provision of a Grit Removal System: Authorization for Execution of an Agreement for Professional Design Services

RECOMMENDATION:

It is recommended that the City Council authorize the execution of an agreement with Carollo Engineers for professional design services to prepare plans, specification, and a construction cost estimate for the following Water Pollution Control Facilities (WPCF} components in an amount not to exceed $450,000.

BACKGROUND:

The WPCF has three digesters,' of which, only two provide primary treatment of sludge (produce methane gas and convert solids to simpler forms for ultimate disposal). The third, Digester No. 3, constructed in 1954, currently does not operate in primary mode. The attendant heat exchange and mixing systems deteriorated over time, becoming marginally functional, and has been used as a sludge storage tank (secondary digester) since 1990. Sludge generation at the WPCF has increased to the point where two digesters can no longer adequately treat the amount of sludge being generated. At least three primary digesters are now needed to allow operational flexibility and backup when one digester is taken off line. Refurbishing the heat exchange and mixing systems will convert Digester No. 3 to the primary mode, thereby providing three primary digesters at the WPCF.

Digester No. 2 was constructed in 1961 with a reinforced concrete dome roof. Fine cracks have developed over time through which methane gas, produced during the digestion process, now escapes. Roof repair will eliminate that problem, improve the functionality, and prolong the service life of the Digester. Additionally, Digester No. 2 may also need structural upgrading to meet modern design-standards. for earthquake resistance. The need for seismic design will be determined after Digester No. 3 conversion has been completed and is again operational. Digester No. 2 will then be taken off line for inspection and testing.

The WPCF has operated without a grit removal system since 1992. At that time, due in part to changes in regulations that related to the transportation of grit, the collected grit water content was deemed too high for disposal at a landfill. There were also sanitation problems associated

with the operation of the old grit removal system. As grit has been passed into the digesters since 1992, this has increased the frequency of digester cleaning. Providing a new grit removal system will capture most of the grit present in the sewage and will significantly reduce wear on pumps and retain digester capacity for longer periods of time,

In order to increase efficiencies, and to benefit from economies of scale during both design and construction, staff decided to combine these three projects dealing with the digester system.

Environmental Review:

This facility upgrade project is statutorily exempt from environmental review under the California Environmental Quality Act (CEQA). The Public Resource states that CEQA does not apply to any project consisting of the operation, repair, maintenance, or minor alteration of existing public structures involving negligible or no expansion of use beyond that previous existing.

Consultant Selection:

Staff requested that three firms submit proposals for the design, and all three submitted proposals for consideration. Carollo Engineers was selected as the most qualified firm. The selection was based on a review of: (1) the relevant experience of each firm; (2) the experience and qualifications of the project manager and design team of each firm; (3) the method of work proposed by each firm; and (4) the resources, project controls, and quality assurance of each firm.

Carol10 Engineers was competitive with the other consultants for Minority Owned Business Enterprise/Women Owned Business Enterprise MBE/WBE participation. They propose to use MBE subconsultant participation of 12%. Carollo's proposal is based on a total effort of 2,720 hours, including 466 hours for services during construction. This total effort is substantially less than those proposed by each of the other two consultants.

The base contract for the proposed work hours amounts to about $376,000. As this is essentially a retrofit project, there is a high likelihood that conditions in the field may vary considerably from the assumptions on which the proposal is based. Because of this, staff is recommending that an additional 20% be added to cover the cost of any additional services that may be required and subsequently authorized, as compared with the typical 10 - 15 % . The total cost of the contract, including $74,000 for additional services, is $450,000. Based on an analysis of the number of man-hours proposed by each of the three consultants, staff has concluded that the final negotiated not-to-exceed cost of $450,000 from Carollo Engineers is reasonable for the scope of services required.

Project Cost:

The following represents the best estimate at this time:

Design and administration	$ 490,000
Construction	$1,800,000
Construction administration and inspection	$ 100,000
Total	**$2,390,000**

Funding:

The adopted 2000/01 5-year Capital Improvement Program includes a total of $1,075,000 in the Water Pollution Control Replacement Fund for the following projects:

Digester No. 3 (study, design and construction)	$ 935,000
Grit removal system (study and design only)	$75,000
Digester No. 2 dome repair	$65,000
	$1,075,000

As noted above, the Digester conversion project has approved funding of $935,000 for design and construction. Carol10 Engineers' preliminary estimate show that the construction cost could be between $850,000 and $1,000,000. The grit removal system has funding for design only; no funding for construction was requested in the CIP, primarily because the final choice for a grit removal system will substantially affect the cost. The cost could range between $250,000 and $650,000. Adequate funding for the project will be requested next year, when there is more certainty related to the recommended system. Lastly, the cost of dome repair included in the adopted CIP is based on the traditional repair from the topside. During the proposal process, staff learned that there are new approaches for repair from the inside that may prolong the life of the dome. If this approach is finally selected, sufficient funds will be requested next year.

In addition, if inspection and testing of Digester No. 2 indicate a need for major structural upgrading for seismic strengthening, funds will also be requested at that time.

Schedule:

The following schedule has been developed for this project:

Begin design	August 2000
Design completion	February 1, 2001
Award construction contract	July 2001
Construction completion	June 2002

This schedule assumes that a seismic upgrade of Digester No. 2 will not require major construction work. If additional construction is needed, completion of Digester No. 2 could be delayed 18 months.

The attached resolution authorizes the City Manager to execute an agreement with the consulting firm Carol10 Engineers for a maximum amount not to exceed $450,000 for design, construction administration assistance and additional services,

Prepared by:

Alex Ameri, Deputy Director of Public Works

Recommended by:

Dennis L. Butler, director of Public Works

Approved by:

Jesús Armas, City Manager

Attachment: Exhibit A - Project Location Map

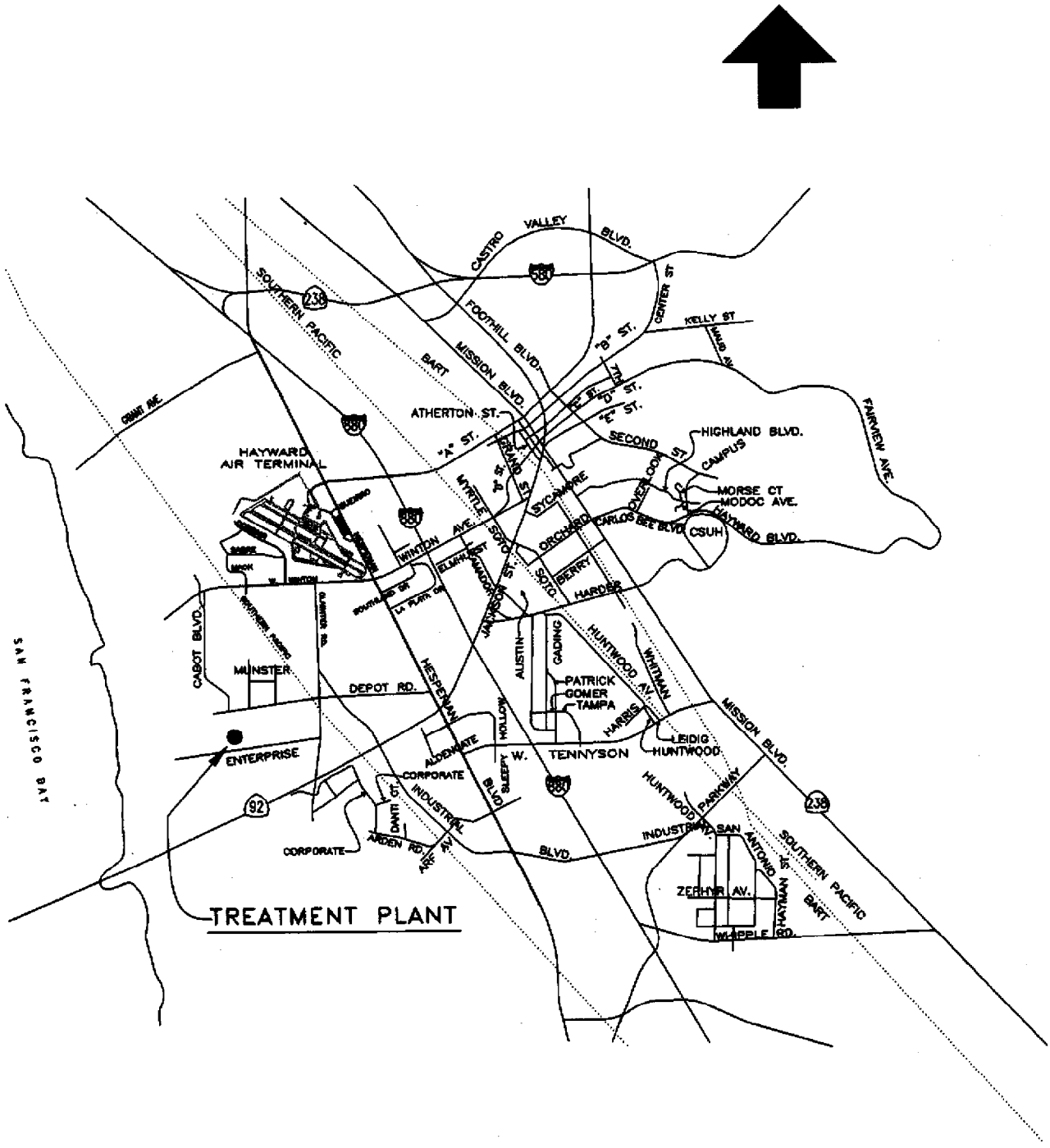

EXHIBIT 'A'
PROJECT LOCATION MAP

DRAFT

HAYWARD CITY COUNCIL

RESOLUTION NO. _____

Introduced by Council Member _____

RESOLUTION AUTHORIZING THE CITY MANAGER TO EXECUTE AN AGREEMENT WITH CAROLLO ENGINEERS FOR PROFESSIONAL DESIGN SERVICES FOR COMPONENTS OF THE WATER POLLUTION CONTROL FACILITIES, PROJECT NOS. 7632, 7645, 7636, 7642, and 7643

BE IT RESOLVED by the City Council of the City of Hayward that the City Manager is hereby authorized and directed to execute on behalf of the City of Hayward an agreement with Carol10 Engineers for professional design services to prepare plans, specifications, and construction cost estimates for components of the Water Pollution Control Facilities to Convert Digester No. 3 from Secondary to Primary Mode of Operation: Study for Conversion: Project No. 7632; Conversion of Existing Secondary Digester No. 3 to Primary Mode: Project No. 7645; Repair Digester No. 2 Dome Roof: Project No. 7642; Seismic Retrofit for Digester No. 2: Project 7636, and Construct Grit Removal System: Project No. 7643, in an amount not to exceed $450,000, and in a form to be approved by the City Attorney

IN COUNCIL, HAYWARD, CALIFORNIA _____ , 2000

ADOPTED BY THE FOLLOWING VOTE:

AYES:

NOES:

ABSTAIN:

ABSENT:

ATTEST: _____
City Clerk of the City of Hayward

APPROVED AS TO FORM:

_____
City Attorney of the City of Hayward